Alternative Fuel Vehicles (AFVs)
Frequently Asked Questions

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What are the different types of AFVs?

Dedicated (CNG, Electric, Propane):
vehicles that run only on one type of fuel

Bi-fuel or Dual-fuel (CNG & Gasoline) :
vehicles that can run on two different types of fuel but not at the same time

Flex-fuel (Ethanol & Gasoline) :
vehicles that can run on a blend of two fuels, or run solely on an alternative fuel, gasoline or diesel

Hybrid (Electric & Gasoline) :
vehicles that run on a combination of two power sources; the most common hybrid is gasoline/electric which uses both an electric motor and gasoline engine

Can all vehicles run on alternative fuels?

No. Some fuels require the vehicle be converted to operate on the alternative fuel. These vehicles are referred to as conversions. Depending on the fuel type, these conversions may be minor or extensive. Vehicles that are initially manufactured to operate on an alternative fuel, and do not require any conversion, are referred to as an OEM vehicle, which stands for Original Equipment Manufacturer.

Do Alternative Fuel Vehicles offer any emissions benefits?

Yes. Using alternative fuels in place of standard gasoline/diesel reduces the amount of particulate matter, carbon monoxide and ground-level ozone that can form as a result of tailpipe emissions. The main ozone-causing pollutants are volatile organic compounds(VOCs), which are substances containing carbon and different proportions of other elements such as hydrogen, oxygen, flourine, chlorine, bromine, sulfur, or nitrogen oxides that easily become vapors or gases. These VOCs and nitrogen oxides react with the sun (ultraviolent rays not absorbed by the stratosphere) to create harmful ozone.

What do the numbers stand for behind a fuel name?

The numbers behind a fuel name represent the blend of that fuel with a standard fuel. For example, Ethanol can be blended in various quantities with gasoline. The most popular blends are E100, E85 and E15. E100 represents 100 percent pure ethanol; E85 represents a blend of 85 percent Ethanol with 15 percent gasoline, and E15 represents a blend of 15 percent Ethanol and 85 percent gasoline.

Biodiesel can also be blended. The most popular blends for biodiesel are B100, B20 and B10.

Biodiesel
Compressed & Liquified Natural Gas
Ethanol
Electric
Fuel Cells
Hybrids
Methanol
LPG
Propane

How safe are alternate fuels?

Most people are familiar with gasoline, so they rarely question its safety. However, people who are unaccustomed to alternate fuels may have misconceptions or doubts about their safety in vehicle applications. Some safety issues associated with the use of alternative fuels are outlined here.

Compressed Natural Gas (CNG):

Since CNG is odorless, odorants must be added to detect leaks and spills. In the event of a leak, the gas will rise to the ceiling and create a potential risk for enclosed areas, not outdoors. Sturdy, heavy storage tanks must be used to avoid possible hazards from the high-pressure storage.

Liquified Natural Gas (LNG):

This fuel is cooled cryogenically to -260 degrees Farenheit. At this temperature, bodily contact with the liquid fuel, cold metals, or cold gas can cause cryogenic burns (frostbite). Methane gas detectors must be installed to detect leaks, because odorants cannot be added to LNG.

Methanol (M85):

Methanol is corrosive to several metals, rubberized components, gaskets and seals. Low flame luminosity makes M85 fires difficult to detect in the daylight. Unhealthy exposure can occur through fume inhalation, ingestion, or direct contact with the skin.

Biodiesel (B100, B20, B5):

Biodiesel is made from cooking oils and alchohol. So if you spill it on the ground, it will quickly degrade into natural organic residues. Biodiesel is safe to handle and mixes well with diesel fuel and stays blended in the presence of water.

Ethanol (E85):

Because it is an alcohol, ethanol can be corrosive to some metals, gaskets, and seals. E85 is less volatile than gasoline, despite the fact that it contains 15 percent gasoline. The ethanol component of E85 is denatured to prevent consumption.

Propane (LPG):

Strong tank construction is required, but the pressure hazard is less than with CNG. LPG should be odorized and detectors are recommended to help detect leaks or spills. The fuel is extremely volatile and LPG fires burn twice as hot as gaoline fires.

Electricity:

Electrical circuits are self-contained and grounded to limit the risk of shock from the vehicle frame. EV battery packs store enough energy to produce dangerous or even lethal shock. Electrolytes in the battery may cause chemical burns and protective gear must be worn.

Fuel Cells:

Fuel Cells produce electricity without combustion. They can be fueled by any fuel, CNG, Methanol, Ethanol and Reformulated Gasoline. Most research is geared towards using Hydrogen as the fuel. When hydrogen is handled properly, it is a safe fuel but has energy that needs to be treated with respect.

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What is the averaege price at the pump?

Like gasoline and diesel, the price of alternative fuels fluctuates in accordance with outside factors, such as international economic changes and supply and demand. The accessibility of alternative fuels is regional, and geographic location can greatly affect the price at the pump. For example, propane is generally less expensive in southern states that have access to the Dixie pipeline; natural gas is more economical in urban areas; and ethanol producers tend to sell their fuel to the Midwest to reduce fuel transportation costs. Since LPG and CNG are also used outside the transportation sector, it is difficult to isolate the price charged for vehicle refueling. More detailed information on the price of alternative fuels can be obtained through the fuel associations or the Energy Information Administration.

Gasoline	CNG	E85	LNG	LPG	M85	Biodiesel
$1.00	less	more	more	less	more	more

Check www.eia.doe.gov/ for current alternative fuel prices

Do AFVs drive differently than regular gasoline-fueled vehicles?

Most people cannot tell the difference when driving an alternate fuel vehicle versus a gasoline vehicle. In fact, the hybrid vehicles are much quieter because of the smaller engine.

who can buy AFVs?

Anyone can buy an AFV: from the common person, to fleet managers that are responsible for numerous vehicles for local, state and federal government all the way to private businesses.

Are there any incentives for buying afvs?

The federal government offers tax credits to those who purchase AFVs or to those who convert thier vehicle's engine to be compatible with alternative fuels. In addition to these Federal incentives, many states also offer various incentives to reduce the cost of purchasing AFVs.

A tax deduction of up to $100,000 can be claimed for clean fuel refueling sites (including electricity). The tax deduction is available on sites placed into service after June 30, 1993, and before January 1, 2005.

For a complete list of Federal tax incentives and AFV and refueling site incentives offered in the state of Maryland, please contact the Mobile Sources Control Program at 410 - 537 -3270.

Why should we buy AFVs?

** The Baltimore Region and Washington D.C. are designated as Severe 15 - Nonattainment for Ozone. Any area that does not meet the national primary and secondary ambient air quality standards for a particular pollutant is termed a nonattainment area.*

** Smog or ground-level ozone, can reduce lung function and cause irritation of the eyes, nose and throat. Emissions from vehicles can irritate existing human health problems, especially asthma, emphysema and those related to the respiratory tract. Pollutants and particles released by vehicle emissions can cause shortness of breath and in severe cases, chronic lung damage.*

** Pollutants released into the air from vehicle emissions can reduce visibility, causing haze. Haze can impair the visual quality of nature, such as sunsets, horizons and landscapes. Pollutants can also damage vegetation and deteriorate materials on cars, buildings, statues, and contribute to pollution in our waterways.*

** Using alternative fuels reduces emissions from vehicles. The properties of alternative fuels make them cleaner than conventional gasoline. Alternative fuels emit less ozone-forming hydrocarbons and toxics. Combustion of any carbon-based fuel produces carbon dioxide, which is one of the gases that contributes to global warming. Consequently, fuels produced from natural gas or biomass result in less carbon dioxide accumulation as well as help keep our air clean (smog-free)!*

Having fuels in the marketplace gives consumers new choices and decreases our dependence on imported oil.